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09/816,453	03/26/2001	Osamu Itokawa	862. C2157	6734

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EXAMINER

JOHNSON, TIMOTHY M

ART UNIT PAPER NUMBER

2625

DATE MAILED: 04/01/2004

6

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/816,453

Applicant(s)

ITOKAWA, OSAMU

Examiner

Timothy M Johnson

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 2,3,5,13,14,16 and 25-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,6-12,15 and 17-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Art Unit: 2625

### **Election/Restriction and Status of Claims**

1. Claims 2-3, 5, 13-14, 16, and 25-37 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made without traverse in paper no. 6.
2. Applicant's election without traverse of species II, claims 1, 4, 6-12, 15, and 17-24 in Paper No 6 is acknowledged. Examiner thanks Applicant for astutely pointing out that claims 12, 15, and 17-20 also belong to species II. In addition, it is also clear that claim 23 is the corresponding computer readable medium claim of apparatus claim 1 and method claim 12. The Examiner also clarifies that claims 10-11, 21-22, and 24 are decoding claims of the first and second embodiments and therefore also belong to both species I and II (see Applicant's specification on page 42, lines 10-16). Here's a summary of the species:

Species I (Nonelected): Claims 1-3, 5-8, 10-14, 16-19, and 21-24.

Species II (Elected): Claims 1, 4, 6-12, 15, and 17-24.

Species III (Nonelected): Claims 25-37.

### **Claim for Priority**

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119 (a)-(d), which papers have been placed of record in the file.

### **Drawings**

4. Figures 16-28B should be designated by a legend such as --Prior Art-- as only that which is old is illustrated. (See MPEP § 608.02(g)). Applicant's specification refers to these figures in connection with describing conventional encoding/decoding.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

#### **Disclosure**

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The Examiner suggests the following title:

"In Image Compression, Selecting Field or Frame Discrete Wavelet Transformation Based on Entropy, Power, or Variances from the High Frequency Subbands."

#### **Claim Rejections - 35 USC § 112**

6. The following is a quotation of the first paragraph of 35 U.S.C 112:

The specification shall contain a written disclosure of the invention, and the manner and process of making an using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1, 4, 6-12, 15, and 17-24 are rejected under 35 U.S.C. 112, first paragraph, because the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention.

For claim 1, the specification does not support discriminating if the first or second segmentation means is applied to the input moving image data. Rather, the specification supports selecting either the field wavelet transform or the frame wavelet transform on pages 38-39 with respect to Figs. 7-8. There is no "if", because the discrimination means simply determines whether to use the field or frame wavelet transform based on analysis of the frame wavelet transformed data as clearly shown in Fig. 7, block 402, which is done before the discrimination process 404. In fact, the discrimination takes input from block 402 as explicitly shown in Fig. 7. A similar argument can be made for embodiment I; however, embodiment I corresponding to species I was not elected.

For claims 12 and 23, see the rejection of at least claim 1.

For claim 10, similar to the rejection of claim 1, claim 10 recites discriminating if the first or second synthesis means is applied to the decoded data. Again, there is no "if", because the discrimination means simply determines whether to perform an inverse wavelet transform (i.e. synthesis) using either field or frame synthesis. See page 35, the second full paragraph on page 42, and Fig. 5 of Applicant's disclosure.

### **Claim Rejections - 35 USC § 103**

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 4, 8, 10-12, 15, 19, and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krause et al., 5,091,782, in view of Jahanghir et al., 6,275,616.

For claim 1, an image processing apparatus for encoding input moving image data, comprising first segmentation means for making subband segmentation of the input moving image data into in units of frames using a transformation is provided by Krause by at least blocks 42 and 44 in Fig. 3 and the second and third full paragraphs in c. 7, where subband information is provided by the frequency transform coefficients as a result of transformation. A second segmentation means for making subband segmentation of the input moving image data in units of fields using a transformation is provided by Krause by block 36 in Fig. 3 and the second full paragraph in c. 7. Wavelet transformation is not explicitly provided by Krause, but is conventional and well known. Jahanghir provides for wavelet transformation for both frames and fields in at least c. 7, lines 21-29. Krause can use the wavelet transform for the frames and fields, since Krause is not restricted to any specific transform as indicated in the paragraph bridging cols. 5-6. It would've been obvious to one having ordinary skill in the art at the time the invention was made to use the wavelet transform for the frames and fields, since Jahanghir suggests that different and specific wavelet transforms can be used for

certain types of images (e.g. frames or fields), so that optimal transforms are suggested based on image type, and because Jahanghir clearly note that wavelet transforms have advantages over "Fourier methods" (e.g. the "Discrete Cosine Transform ("DCT")" of Krause in the paragraph bridging cols. 5-6. Arithmetic means for making an arithmetic process of first subbands obtained by said first segmentation means, and discrimination means for discriminating based on a first arithmetic value obtained by said arithmetic means if said first or second segmentation means is applied to the input moving image data is provided by Krause in at least the first to fourth full paragraphs in c. 8.

For claim 4, the apparatus according to claim 1, wherein said discrimination means discriminates based on a comparison result between the first arithmetic value and a predetermined value if said first or second segmentation means is applied to the input moving image data is provided by Krause in at least the first three full paragraphs in c. 8.

For claim 8, the apparatus according to claim 1, wherein said arithmetic means makes the arithmetic process for computing one of an entropy, signal power, and variance of the subband is provided by the sum or absolute differences or the mean square error of Krause in the second full paragraph in c. 8, which provide for at least power and variance.

For claim 10, an image processing apparatus for decoding encoded moving image data, comprising decoding means for decoding encoded data which contains identification information indicating a process in units of frames or fields, and is obtained by encoding at least subband segmented data is provided by Krause in at least the paragraph bridging cols. 8-9 and the first full paragraph in c. 10. First synthesis means for making subband synthesis in units of frames using transformation for decoded data decoded by said decoding means, second synthesis means for making subband synthesis in units of fields using transformation for decoded data decoded by said decoding means is provided by the field and frame synthesis using inverse transformation as taught by Krause in at least the first full paragraph in c. 10. Synthesis by using wavelet transformation is not explicitly provided by Krause, but is conventional and well known. Synthesis by using wavelet transformation is provided by Jahanghir in at least c. 7, line 16 – c. 8, line 47, and the last full paragraph in c. 10, where both frame and field using the wavelet and inverse wavelet transformation is taught. Synthesis by using wavelet transformation can be used as the inverse transformation process of Krause. It would've been obvious to one having ordinary skill in the art at the time the invention was made to synthesis by using wavelet transformation, since Jahanghir teaches at least the advantages of fast and optimal inverse wavelet transformation as well as for reducing memory requirements, and also for providing a higher quality lower definition image. Discrimination means for discriminating based on the identification information contained in the decoded data decoded by said decoding



means if said first or second synthesis means is applied to the decoded data is also provided by Krause in at least the first full paragraph in c. 10.

For claim 11, the apparatus according to claim 10, wherein the decoded data consists of predetermined unit decoded data groups, and the identification information is included in each predetermined unit decoded data group is provided by at least block data sets in at least the paragraph bridging cols. 7-8 to the paragraph bridging cols. 8-9 of Krause, which also teaches that the identification information is combined to be included with the "data group".

For claim 12, see the rejection of at least claim 1.

For claim 15, see the rejection of at least claim 4.

For claim 19, see the rejection of at least claim 8.

For claim 21, see the rejection of at least claim 10.

For claim 22, see the rejection of at least claim 11.

For claim 23, see the rejection of at least claim 1. A computer readable memory storing a program code of an image process for encoding is not explicitly provided by Krause, but Krause does explicitly recite "algorithms" in at least the abstract. In any case, Jahanghir provides for a computer system for coding and decoding in at least Fig. 7 and c. 8, line 48 – c. 9, line 43. Krause can use the computer system of Jahanghir to practice the algorithms for coding and decoding. It would've been obvious to one

having ordinary skill in the art at the time the invention was made to use a computer system program for storing program for implementing coding and decoding, since Jahanghir teaches many variations of computer implementations including computer readable media and many other advantageous configurations in at least where cited above and c. 9, line 43 – c. 10, line 50.

For claim 24, see the rejection of at least claim 10 and 23.

10. Claims 6-7, 9, 17-18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krause et al., 5,091,782, in view of Jahanghir et al., 6,275,616, as applied to claims above, and further in view of Yamazaki et al., 6,704,455.

For claim 6, the apparatus according to claim 1, wherein said arithmetic means makes the arithmetic process of a high-frequency subband obtained is provided by the frequency transform of Krause, which provides for high frequency information. Krause does not explicitly provide for a high frequency subband after the input moving image data has undergone vertical subband segmentation. While it is very likely that Jahanghir provides for at least two levels of wavelet transformation and therefore both vertical and horizontal transformations, it is not explicitly provided. Yamazaki provides for arithmetic processing of a high frequency subband after the input moving image data has undergone vertical subband segmentation in at least the first full paragraph in c. 9 and the vertical and horizontal frequency subbands are explicitly shown in at least Fig. 3B and Fig. 9. Krause can use the wavelet transform for the frames and fields, since

Krause is not restricted to any specific transform as indicated in the paragraph bridging cols. 5-6. It would've been obvious to one having ordinary skill in the art at the time the invention was made to use the wavelet transform for the frames and fields, since Yamazaki provides for at least maintaining image quality using optimum quantization in c. 2, lines 18-46, by using subband calculations using the wavelet transform as noted in the paragraph bridging cols. 8-9 and the first full paragraph in c. 9.

For claim 7, the apparatus according to claim 1, wherein said arithmetic means makes the arithmetic process of a high-frequency subband obtained after the input moving image data has undergone vertical subband segmentation and horizontal subband segmentation, is provided as noted above for claim 6, where both a vertical and horizontal subband segmentation is provided.

For claim 9, the apparatus according to claim 1, wherein when said discrimination means determines that said second segmentation means is applied, vertical subband segmentation by said second segmentation means uses data obtained after said first segmentation means executes horizontal subband segmentation of the input moving image data is provided as noted above for claim 6, where Yamazaki provide for vertical transformation after horizontal transformation in at least Fig. 9.

For claim 17, see the rejection of at least claim 6.

For claim 18, see the rejection of at least claim 7.

For claim 20, see the rejection of at least claim 9.

### **Contact Information**

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy M Johnson whose telephone number is 703-306-3096. The examiner can normally be reached on Monday – Friday from 5:30 to 2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh M. Mehta, can be reached on Monday – Friday from 9:30 to 5:00. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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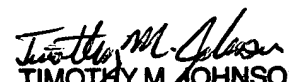
Art Unit: 2625

Timothy M. Johnson

Patent Examiner

Art Unit 2625

March 26, 2004

  
TIMOTHY M. JOHNSON  
PRIMARY EXAMINER